OrbitLink Consulting

UNLOCKING THE POTENTIAL OF SPACECRAFT CONTROL AND COMMUNICATIONS

CAPABILITIES FLYER / ORBITLINK CONSULTING, HUNTSVILLE, ALABAMA

Your mission won't wait.
Senior spacecraft expertise, ready now.

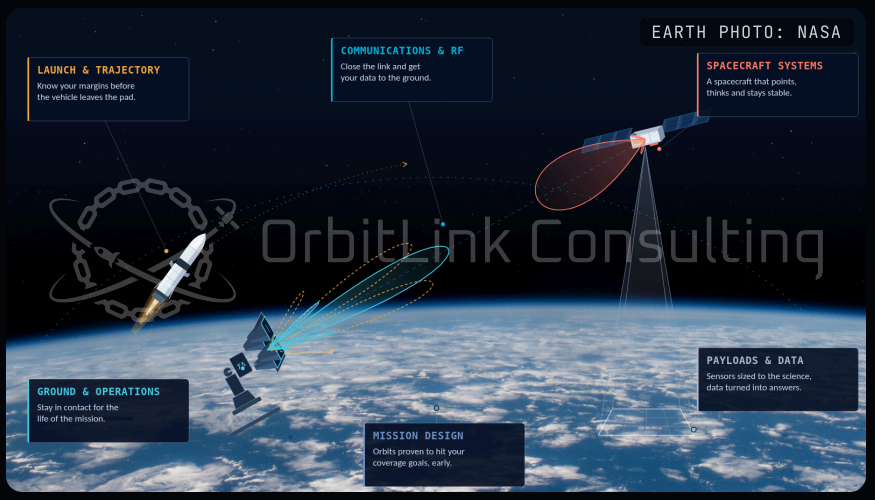
OrbitLink puts a senior spacecraft engineer on your program without a months-long hiring search. The firm is founder-led, so **the engineer you talk to is the engineer who does the work**, from concept through launch and on-orbit operations.

17+
Years in aerospace

15+
On-orbit spacecraft supported

10+
Missions supported

20+
Technical papers



01
Mission design
- Orbit selection and **trade studies**
- Access, coverage and revisit analysis
- Constellation and formation design
- Mission simulation in **NASA GMAT**

02
Launch & trajectory
- Trajectory design from pad to insertion
- Guidance, navigation and control
- **Six-degree-of-freedom** simulation
- Monte Carlo dispersion analysis

03
Spacecraft systems
- Attitude determination and control (**ADCS**)
- Adaptive and sliding mode control
- Sensor fusion and Kalman filtering
- Firmware, avionics and custom boards

04
Communications & RF
- Link budgets and frequency planning
- **RF payloads** and complex RF circuit design
- Antenna design and monopulse tracking
- Software-defined radio

05
Ground & operations
- Ground station design and integration
- Antenna tracking and rotor control
- Command and control software
- Launch and **on-orbit operations** support

06
Payloads & data
- Earth observation payload sizing
- Sensor footprint, swath and resolution
- **AI and machine learning** for mission data
- Machine learning for nonlinear dynamics

FOUNDER-LED / DR. MASON NIXON, PH.D., FOUNDER & PRINCIPAL CONSULTANT

Every engagement is led and performed by the founder. Tools, hardware and how to start are on the next page.

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Let's talk about your mission.

Scan to request a quote now.

orbitlink.org →

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CAPABILITIES FLYER / TOOLS AND HARDWARE

Tools we built and use.
Hardware you can quote.

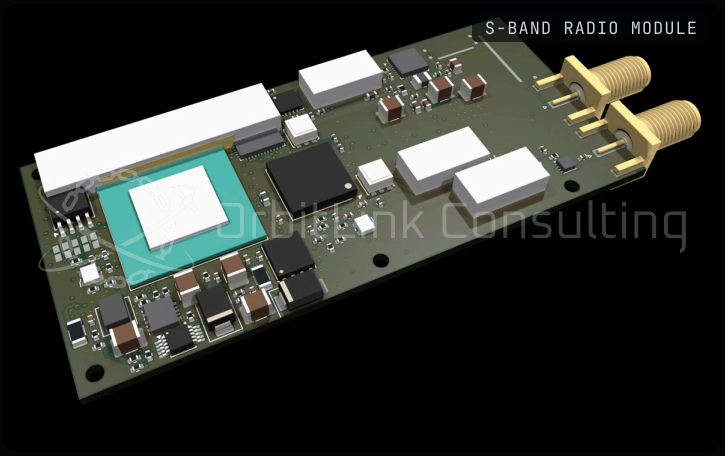
Every engagement comes with **our own analysis and simulation software**, so your program does not pay to build it from scratch. We also design custom circuit boards, including **defense-aligned** RF and SDR boards that use no parts from PRC-headquartered manufacturers.

5
In-house software tools

7
Circuit board designs available for quote

3
Defense-aligned boards

S-band
Radio module and PC/104 radio



01
OrbitLink 6DOF

- Independently developed **Rust** six-degree-of-freedom launch vehicle simulation
- Comparable in scope to NASA's MAVERIC
- Fast enough for large **Monte Carlo** dispersion campaigns

02
Coverage Analysis Tool

- Access, coverage and revisit for single satellites and **constellations**
- 3D globe visualization
- Coverage reports for mission planning and ground station placement

03
Real-Time Aerospace Visualizer

- 3D **trajectory simulation**
- Live telemetry display
- Orbital mechanics

04
OrbitLink Ground Station

- **Antenna tracking** and rotor control
- Link budget analysis
- Command and control

05
LibreSim

- Free, **open-source**, browser-based block diagram modeling and simulation
- Kalman filter, controls and RF toolboxes
- Autocoder generates code from the model

06
Circuit boards

- **Defense-aligned:** DSDR wideband SDR receiver, USA32 development board, S-band radio module
- **Commercial:** S-band PC/104 radio, ESP32Radio networked SDR, G-5500 rotor controller, ESP32-C6 development board
- Product pages at orbitlink.org/circuit-boards

AVAILABILITY / US GOVERNMENT USE AND EVALUATION KITS

Boards are available for US Government use and as evaluation kits for product developers, software developers and system integrators. Export may be restricted under US export control regulations. Defense-aligned describes design and part selection; it is not a certification or a compliance claim. Software tools other than LibreSim are available to clients on request.

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What are you building next?

Scan to share your requirements and timeline.

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